

Norfolk Bicycle and Pedestrian Strategic Corridor Plan *December 17, 2015*



PUBLIC OUTREACH

Public Meetings

Wednesday, Oct. 15th

- Park Place Multipurpose Center

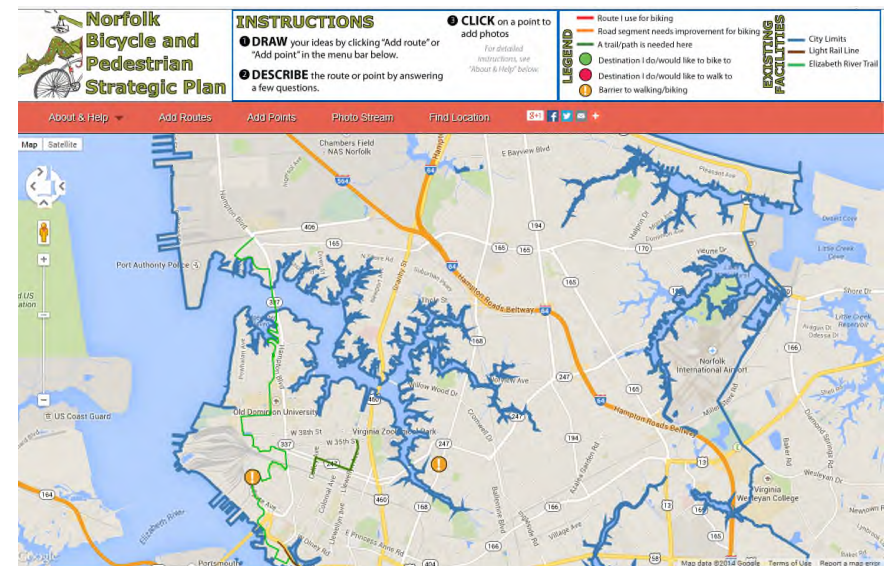
Thursday, Oct. 16th

- Tarrallton Recreation Center

Wednesday, Oct. 22nd

- Southside Aquatic Center

WIKIMAP



<http://wikimapping.net/wikimap/NorfolkBikePed.html>



City of Norfolk Bicycle and Pedestrian Strategic Plan

September 2015



DEPARTMENT OF PLANNING



Strategic Plan

Plan Organization

Chapter 1: Introduction

Chapter 2: Plan Development Process

Chapter 3: Implementation

*Chapter 4: Corridor Facility
Recommendations*

Appendices



Final Study Corridors Map

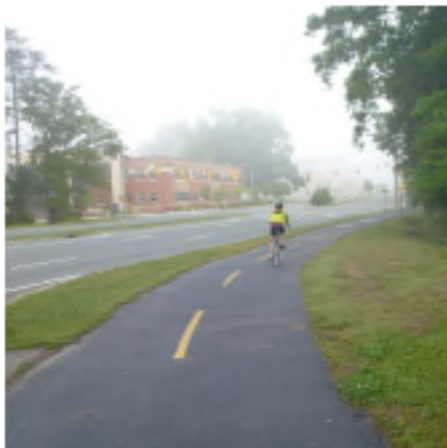


Bicycle and Pedestrian Strategic Plan

DEPARTMENT OF PLANNING



Bicycle Facilities



Shared-Use Path

- Fully separated, two-way path
- Open to pedestrians, bicyclists and most other non-motorized users
- Typically paved and marked with a center line
- May be parallel to a roadway or along a separate alignment
- Best used on streets with high motor vehicle traffic speeds or volumes



Separated Bike Lane

- On-road, bicyclist-only facility, physically separated from automobile travel lane and sidewalk by curbs, bollards, parked cars, or other vertical elements
- May be one-way on both sides of the street, or two-way on one side of the street
- May be located at roadway level or raised to, or just below sidewalk level
- Best used on streets with medium and high traffic volumes and fewer intersections or driveways

Bicycle Facilities



Bike Lane

- On-road bicyclist facility with roadway space dedicated to bicyclists designated by bike lane pavement markings
- Generally located to the right of and in the same direction of the motor vehicle travel lane
- May be placed on one-way streets
- Best used on streets with low to medium motor vehicle traffic volumes



Buffered Bike Lane

- On-road bicyclist-only facility with roadway space dedicated to bicyclists
- Hashed pavement markings create additional space between bicyclists and motor vehicle traffic
 - Buffer may be located between bike lane and automobile travel lane, between bike lane and parking lane, or both
 - Both sides are buffered when total lane width exceeds nine feet
- Best used on streets with medium to high motor vehicle traffic volumes

Bicycle Facilities



Shared Lane Marking

- On-road pavement marking indicating that bicyclists and motorists must share the roadway
- Indicates where bicyclists should position themselves to avoid open car doors when on-street parking is present
- Reinforces motorist caution and expectation that bicyclists are present
- Best used on roads with low motor vehicle traffic volumes and speeds limits under 35 mph



Priority Shared Lane Marking

- Similar to Shared Lane Markings but underlaid with a bright green painted (or thermoplastic) box
- Spaced more frequently than Shared Lane Markings
- Typically used in locations with higher volumes of traffic and/or complex traffic patterns such as those with higher turnover on-street parking
- Best used on roads with low motor vehicle traffic volumes and speeds limits under 35 mph

Bicycle Facilities



Contraflow Bike Lane or Shared Lane

- On-road pavement marking on a street that is one-way for automobile traffic
- Indicates bicyclists ride in opposite direction of automobile traffic either in bike lane separated from adjacent lane by a double yellow line or shared lane marking if enough space for bike lane is not available
- Accompanied by signage indicating two-way bicycle traffic for drivers on and crossing the street

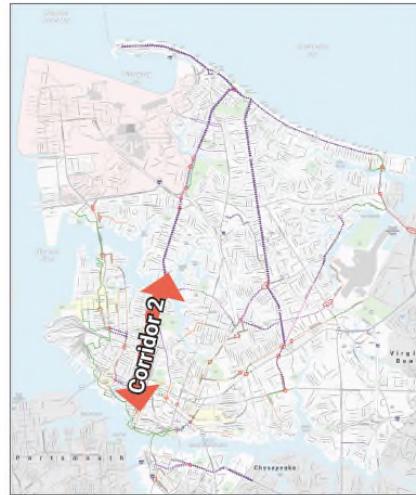


Paved Shoulder

- Paved roadway outside of the edge line available for bicyclist or pedestrian travel
- Lack of bicycle markings differentiates it from a bike lane
- Best used on roads with medium motor vehicle traffic volumes where sidewalks are not present

Example: Corridor Details

Corridor 2: Llewellyn Avenue and lower Granby Street, and Boush Street Alternatives



Length: 2.9 miles

Speed Limit: 15-30 mph

Curb-to-Curb Width:
34 to 66'

AADT: 2,100 - 23,000

Land Use:

Downtown core
commercial at south end;
neighborhood commercial
and medium density
residential through mid-
section

Key Bicycle Facilities:

Separated bike lane on Llewellyn Avenue; priority
shared lane markings on Granby Street

Key Pedestrian Improvements:

Traffic calming and crossing improvements along
Llewellyn Avenue through implementation of separated
bike lanes

Purpose of Improvements

- A strong bicycle connection from downtown to the Arts District and Ghent, Park Place and Colonial Place is needed.
- Traffic calming on Llewellyn Avenue through a road diet would make this street more pedestrian friendly in residential segments.
- Bicycle improvements on mid-Granby (Brambleton Avenue to 30th Street) will further support a revitalizing commercial area.

Estimated Project Cost

\$570,000*

Key Challenges

- Phasing will be critical to their success as the parallel parts of the corridor interact with one another.
- The road diet on Llewellyn Avenue appears feasible based on its low traffic counts.
- Wayfinding signage south of Brambleton Avenue on Duke and Granby Streets will be key to helping bicyclists navigate to their destinations while avoiding travel on high-stress Boush Street.
- The complex intersection at Virginia Beach Boulevard, Olney Road, Duke Street and Llewellyn Avenue will be a design challenge.

Public Input

- Improved bicycle accommodation south of Brambleton Avenue in the core of downtown is a priority for residents and the Downtown Norfolk Council.

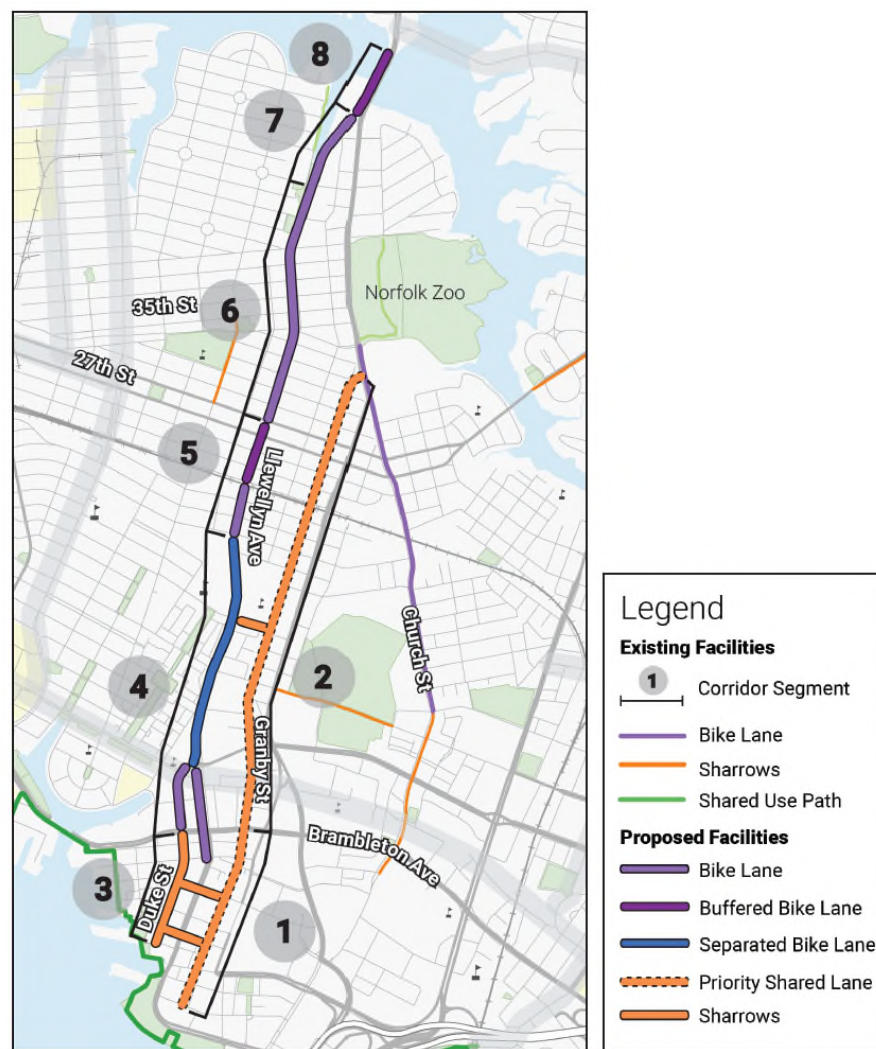
**Note: Cost estimate does not include reconfiguration of intersection at Llewellyn, Virginia Beach and Olney.*

DEPARTMENT OF PLANNING



Example: Facility types

Corridor 2: Recommendations Overview Map



Example: Corridor Photos

Corridor 2: Granby Street

Segment 1: Waterside Drive to Brambleton Avenue

Length: 0.7 miles
AADT: 4,500
Speed limit: 15 mph

Facility: Trail, Priority shared lane markings and street parking
Major Action: Install and sign



- This segment has existing shared lane markings in narrow travel lanes south of Charlotte Street.



- Travel lanes widen north of Charlotte Street. Parking should be added on east side to narrow lanes.



Potential Design Challenges

- Better wayfinding signage is needed to identify the walkway at the southern end of this segment.
- Operations of the street here will not change, but educational outreach efforts to drivers should take place with installation of the new priority shared lane markings.

Segment 2: Granby Street -- Brambleton Avenue to 30th Street

Length: 1.4 miles
AADT: 4,500 - 8,800
Speed limit: 25 mph

Facility: Priority shared lane markings and traffic calming
Major Action: Install and construct



Granby Street facing south at Olney Road

Why Granby

Granby Street is the main corridor through Norfolk's growing Arts and Design District. The Revitalization Strategy for this area identified a preferred shared lane bicycle treatment between Brambleton Avenue and Virginia Beach Boulevard as depicted in the rendering above. Maintaining on-street spaces will make parking easier and create space for in-street parklet construction.

Example: Cross section

Corridor 2: Granby Street

Segment 2: Brambleton Avenue to 30th Street



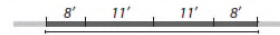
- Near Princess Anne Road, the street is 38' wide with parking on both sides including one commercial loading zone.



- The area near Ghent School elementary school and new residential development would benefit from traffic calming.



*Cross section for
Olney to Shirley
sub-segment*



Existing 38' total width

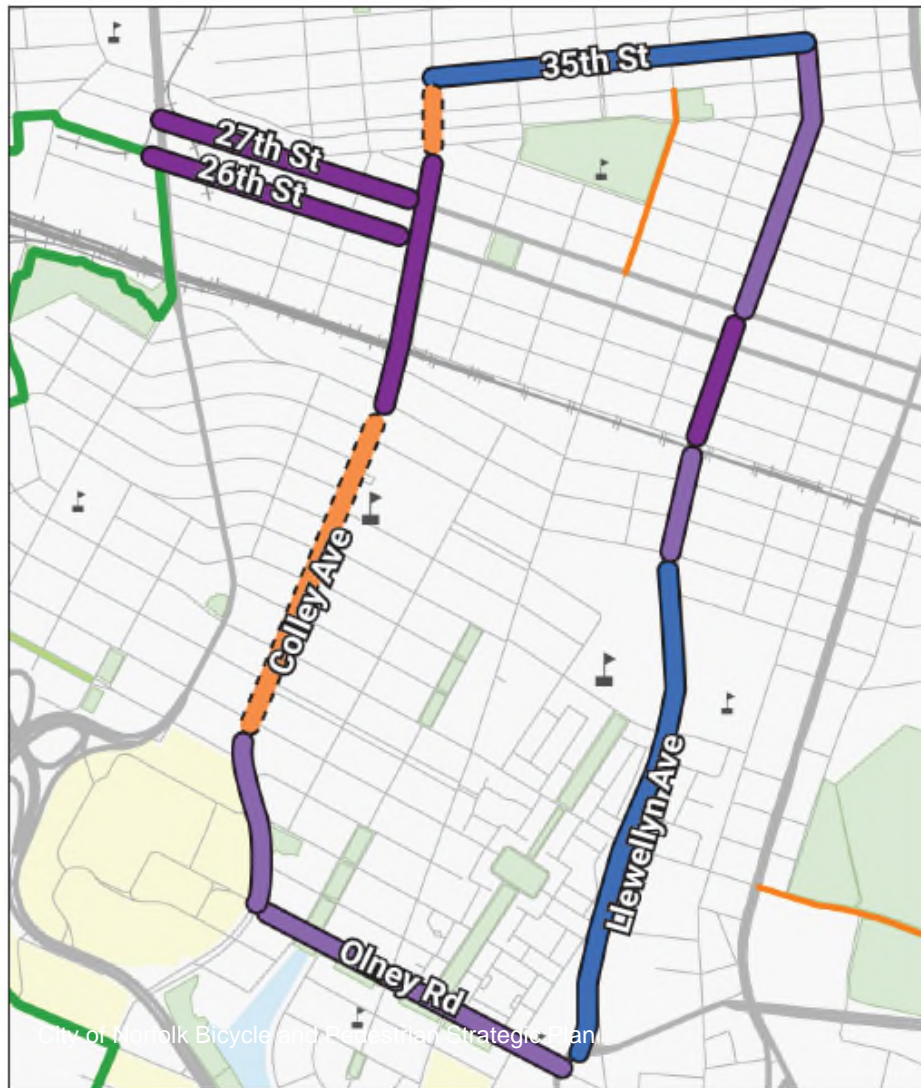
Potential Design Challenges

- The necessity of maintaining parking on both sides of the street through this segment prevents installation of a higher protected bike lane. On-street parking is heavily used in the commercial areas of the Arts District and north of 15th Street.
- In areas of lower utilization, curb extensions should be considered at intersections to prevent drivers from using the parking lane as a passing lane around bicyclists. Curb extensions will also benefit pedestrians by shortening crossing distances.

Next Steps

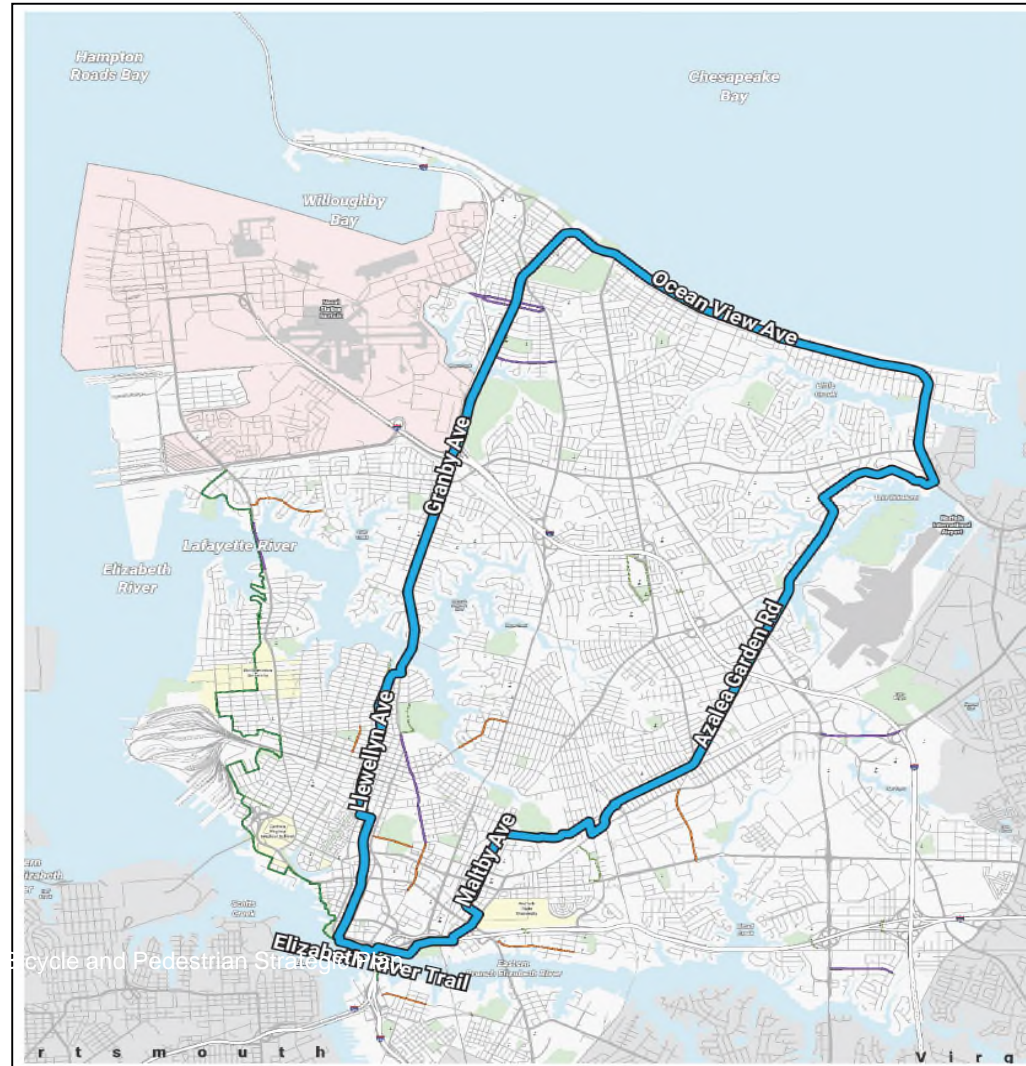
- November 6
 - Norfolk Bicycle and Pedestrian Trails Commission recommended the Strategic Plan for approval by CPC/CC
- November 12
 - Planning Commission recommended approval
- December 8
 - City Council

Pilot Projects



Legend	
Existing Facilities	
	Bike Lane
	Sharrows
	Shared Use Path
Proposed Facilities	
	Bike Lane
	Buffered Bike Lane
	Separated Bike Lane
	Priority Shared Lane

Citywide Recreational Loop



Bicycle and Pedestrian Strategy

DEPARTMENT OF PLANNING



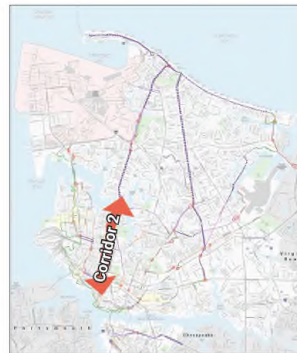
Strategic Plan – Chapter 4

Chapter 4: Corridor Recommendations



Corridor Review

Corridor 2: Llewellyn Avenue and lower Granby Street, and Boush Street Alternatives



Length: 2.9 miles
Speed Limit: 15-30 mph
Curb-to-Curb Width: 34 to 66'
AADT: 2,100 - 23,000

Land Use: Downtown core commercial at south end; neighborhood commercial and medium density residential through mid-section

Key Bicycle Facilities:

Separated bike lane on Llewellyn Avenue; priority shared lane markings on Granby Street

Key Pedestrian Improvements:

Traffic calming and crossing improvements along Llewellyn Avenue through implementation of separated bike lanes

Purpose of Improvements

- A strong bicycle connection from downtown to the Arts District and Ghent, Park Place and Colonial Place is needed.
- Traffic calming on Llewellyn Avenue through a road diet would make this street more pedestrian friendly in residential segments.
- Bicycle improvements on mid-Granby (Brambleton Avenue to 30th Street) will further support a revitalizing commercial area.

Estimated Project Cost

\$570,000*

Key Challenges

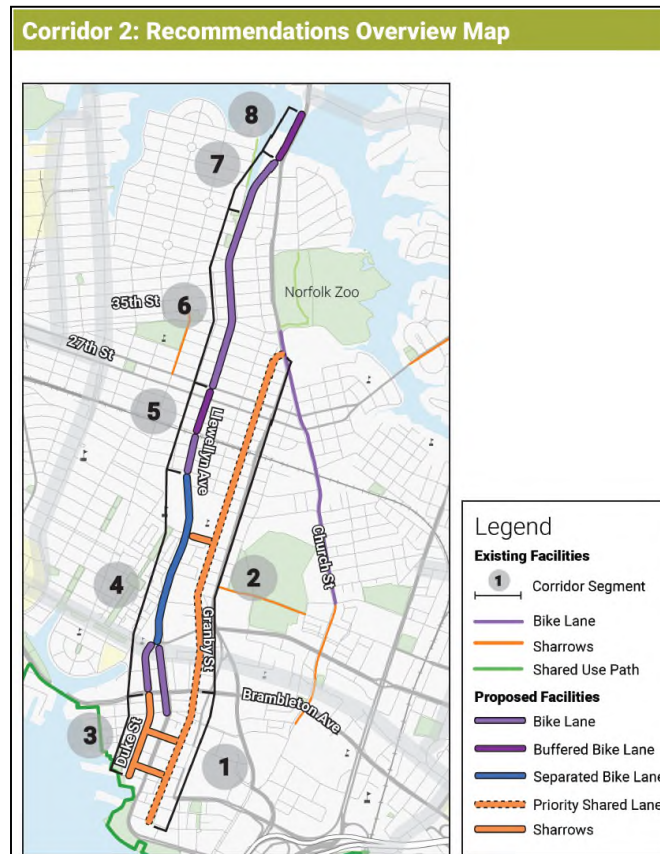
- Phasing will be critical to their success as the parallel parts of the corridor interact with one another.
- The road diet on Llewellyn Avenue appears feasible based on its low traffic counts.
- Wayfinding signage south of Brambleton Avenue on Duke and Granby Streets will be key to helping bicyclists navigate to their destinations while avoiding travel on high-stress Boush Street.
- The complex intersection at Virginia Beach Boulevard, Olney Road, Duke Street and Llewellyn Avenue will be a design challenge.

Public Input

- Improved bicycle accommodation south of Brambleton Avenue in the core of downtown is a priority for residents and the Downtown Norfolk Council.

*Note: Cost estimate does not include reconfiguration of intersection at Llewellyn, Virginia Beach and Olney.

Corridor Review



Corridor Review

Corridor 2: Granby Street

Segment 1: Waterside Drive to Brambleton Avenue

Length: 0.7 miles
AADT: 4,500
Speed limit: 15 mph

Facility: Trail; Priority shared lane markings and street parking
Major Action: Install and sign



- This segment has existing shared lane markings in narrow travel lanes south of Charlotte Street.



- Travel lanes widen north of Charlotte Street. Parking should be added on east side to narrow lanes.



Potential Design Challenges

- Better wayfinding signage is needed to identify the walkway at the southern end of this segment.
- Operations of the street here will not change, but educational outreach efforts to drivers should take place with installation of the new priority shared lane markings.

Segment 2: Granby Street -- Brambleton Avenue to 30th Street

Length: 1.4 miles
AADT: 4,500 - 8,800
Speed limit: 25 mph

Facility: Priority shared lane markings and traffic calming
Major Action: Install and construct



Granby Street facing south at Olney Road

Why Granby

Granby Street is the main corridor through Norfolk's growing Arts and Design District. The Revitalization Strategy for this area identified a preferred shared lane bicycle treatment between Brambleton Avenue and Virginia Beach Boulevard as depicted in the rendering above. Maintaining on-street spaces will make parking easier and create space for in-street parklet construction.

Corridor Review

Corridor 2: Granby Street

Segment 2: Brambleton Avenue to 30th Street



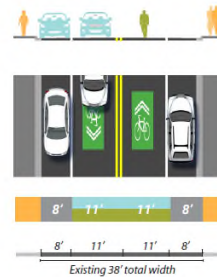
- Near Princess Anne Road, the street is 38' wide with parking on both sides including one commercial loading zone.



- The area near Ghent School elementary school and new residential development would benefit from traffic calming.



Cross section for Olney to Shirley sub-segment



Potential Design Challenges

- The necessity of maintaining parking on both sides of the street through this segment prevents installation of a higher protected bike lane. On-street parking is heavily used in the commercial areas of the Arts District and north of 15th Street.
- In areas of lower utilization, curb extensions should be considered at intersections to prevent drivers from using the parking lane as a passing lane around bicyclists. Curb extensions will also benefit pedestrians by shortening crossing distances.




Corridor Review

Corridor 2: Duke Street


Segment 3: Tazewell Street to Olney Road

Length: 0.3 miles
AADT: 2,100 - 9,000
Speed limit: 25 mph

Facility: Bike lanes and shared lane markings
Major Action: Road diet and install



- South of Brambleton Avenue, Duke is a low-volume, low-traffic residential street parallel to the heavily traveled Boush Street.
- The four-lane area of Duke Street is recommended for a road diet based on its low traffic volume of 9,000 AADT.



Potential Design Challenges

- Special pavement markings should be used to direct bicyclists cross the light rail tracks at a 90-degree angle at Charlotte Street.
- Wayfinding will be necessary to direct bicyclists to routes on Tazewell Street and Freemason Street to access downtown.
- Bike lanes on Boush Street may be implemented in the long term to add another option for riders with a destination along this street. Today, with no option for accommodating bicyclists south of Charlotte Street, these bike lanes would be a disconnected part of the network.
- In the future, the City should explore implementation of bike lanes on Boush Street from Virginia Beach Boulevard south to Charlotte Street.

